

NEAQS 2004

**Meteorological summary for Gulf of Maine and northern coastal New
England**

Wayne M. Angevine

20 July

February 3, 2006

General

(From PSU synoptic summary): The persistent deep longwave trough continued to sit over the forecast area through the period. At the surface, a lingering surface pressure trough associated with the weekend wet weather was parked right along the New England coastline through the period. Showers and thunderstorms re-fired during the morning and afternoon in northern New Hampshire and central and Downeast Maine. Offshore, S to SE winds from 5-10 kts prevailed. Near the coast and inland, winds shifted to W at 5-10 kts behind the lingering surface trough. While cooler water temperatures were found in the Bay of Fundy, generally offshore highs ranged from 14-17C. Coastal areas stayed in the low to mid 70's (22-25C). Inland, temperatures ranged from the upper 60's to low 70's (19-22C) for northern New England. Lows stayed in the low to mid 60's (16-18C) for most of New England. Fog covered a fairly extensive area, from the shorelines of Maine into much of the Gulf. Some of this fog was slow to burn off, particularly in northern parts of the Gulf into the Bay of Fundy. Skies started off scattered to broken to overcast conditions prevailed for most of New England, with most of the overcast over eastern portions. Skies cleared to few to scattered during the day, with some spots totally clearing out. Some scattered cumulonimbus was found in northern New Hampshire and Maine during the day.

Ozone and CO

Low levels of pollutants were observed by the ship early in the day (UTC). As the ship moved southwest it gradually came into an area of modest CO and ozone levels in flow from the urban corridor.

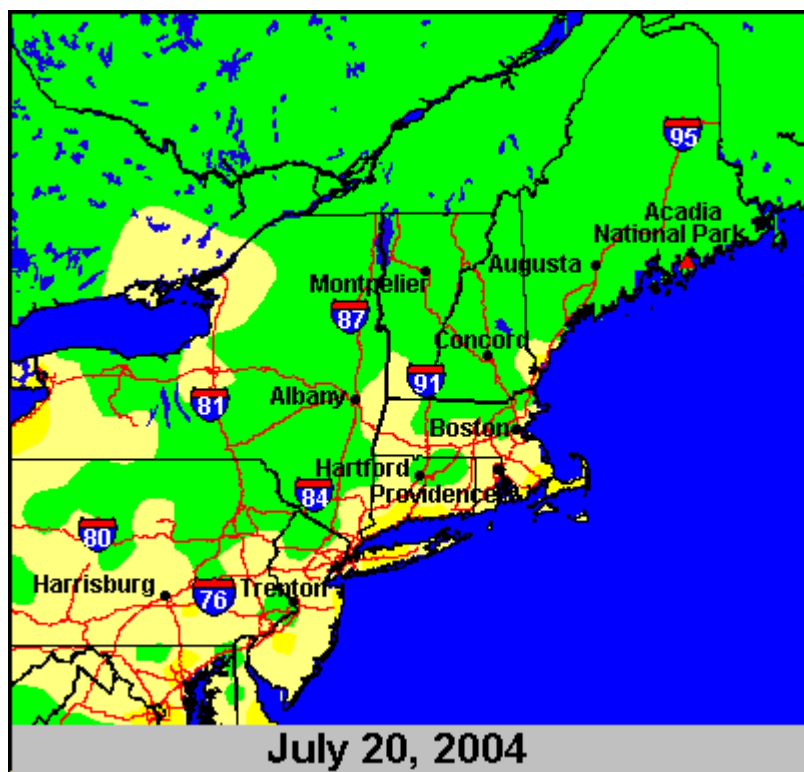


Figure 1: Maximum 1-h surface ozone from EPA AIRNOW

Footprints

Footprint S-R-Relationship for flight RHB_cruise1

Start time of sampling 20040720. 55401 End time of sampling 20040720. 62901

Lower release height 0 m Upper release height 30 m

Meteorological data used is 1x1 deg ECMWF analyses

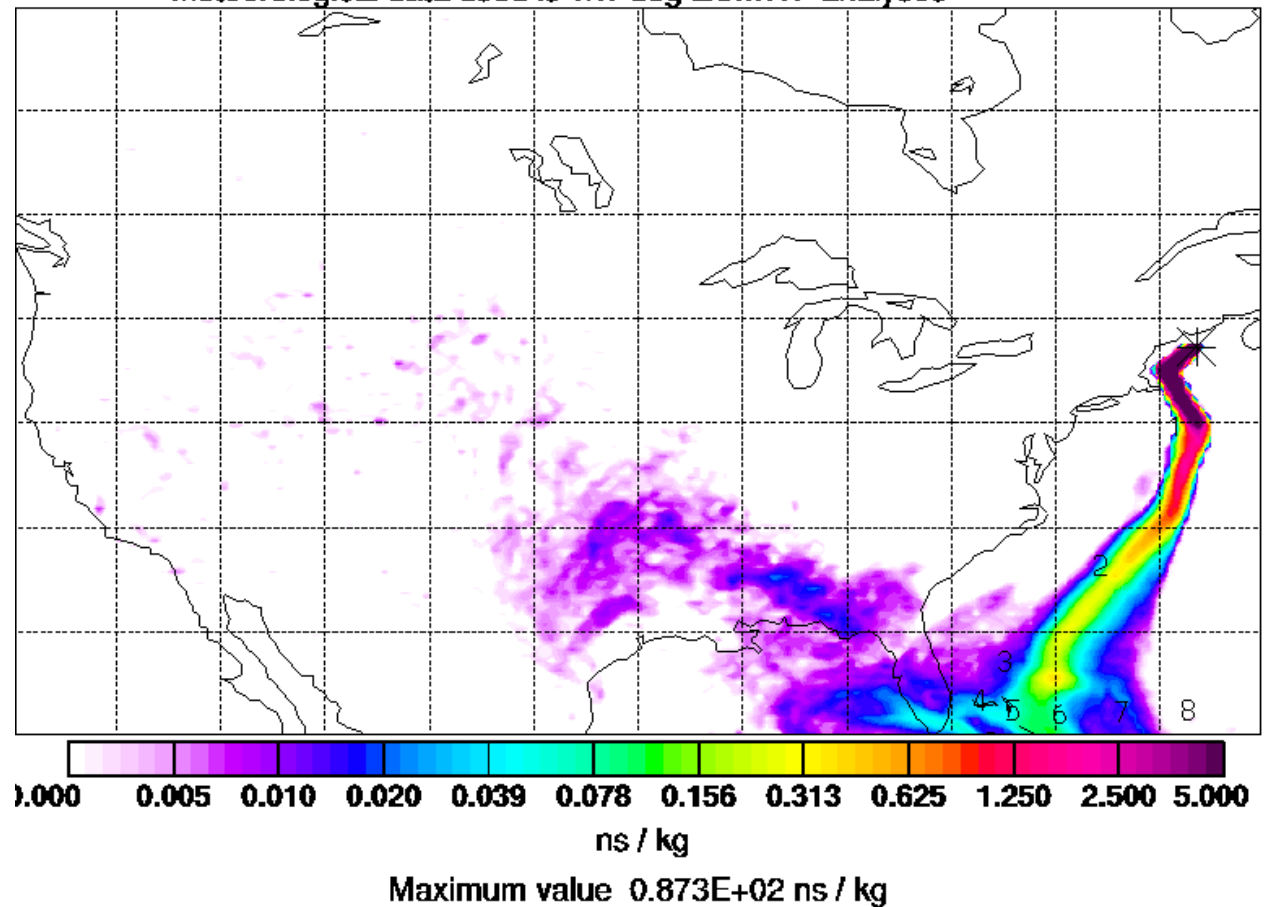


Figure 2: FLEXPART footprint for 0554-0629 UTC

Footprint S-R-Relationship for flight RHB_cruise1

Start time of sampling 20040720.114101 End time of sampling 20040720.123301

Lower release height 0 m Upper release height 30 m

Meteorological data used is 1x1 deg ECMWF analyses

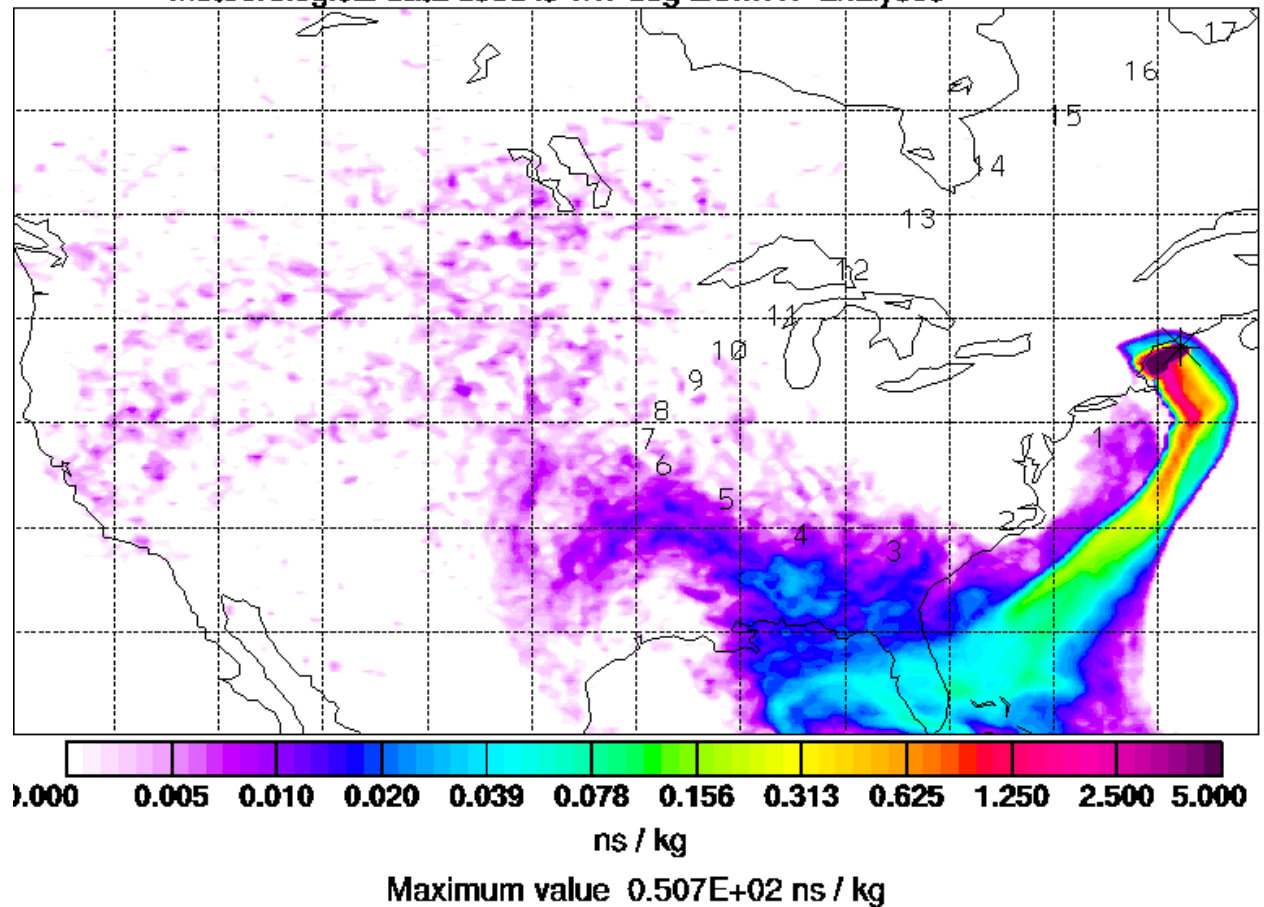


Figure 3: FLEXPART footprint for 1141-1233 UTC

Footprint S-R-Relationship for flight RHB_cruise1

Start time of sampling 20040720.175201 End time of sampling 20040720.182001

Lower release height 0 m Upper release height 30 m

Meteorological data used is 1x1 deg ECMWF analyses

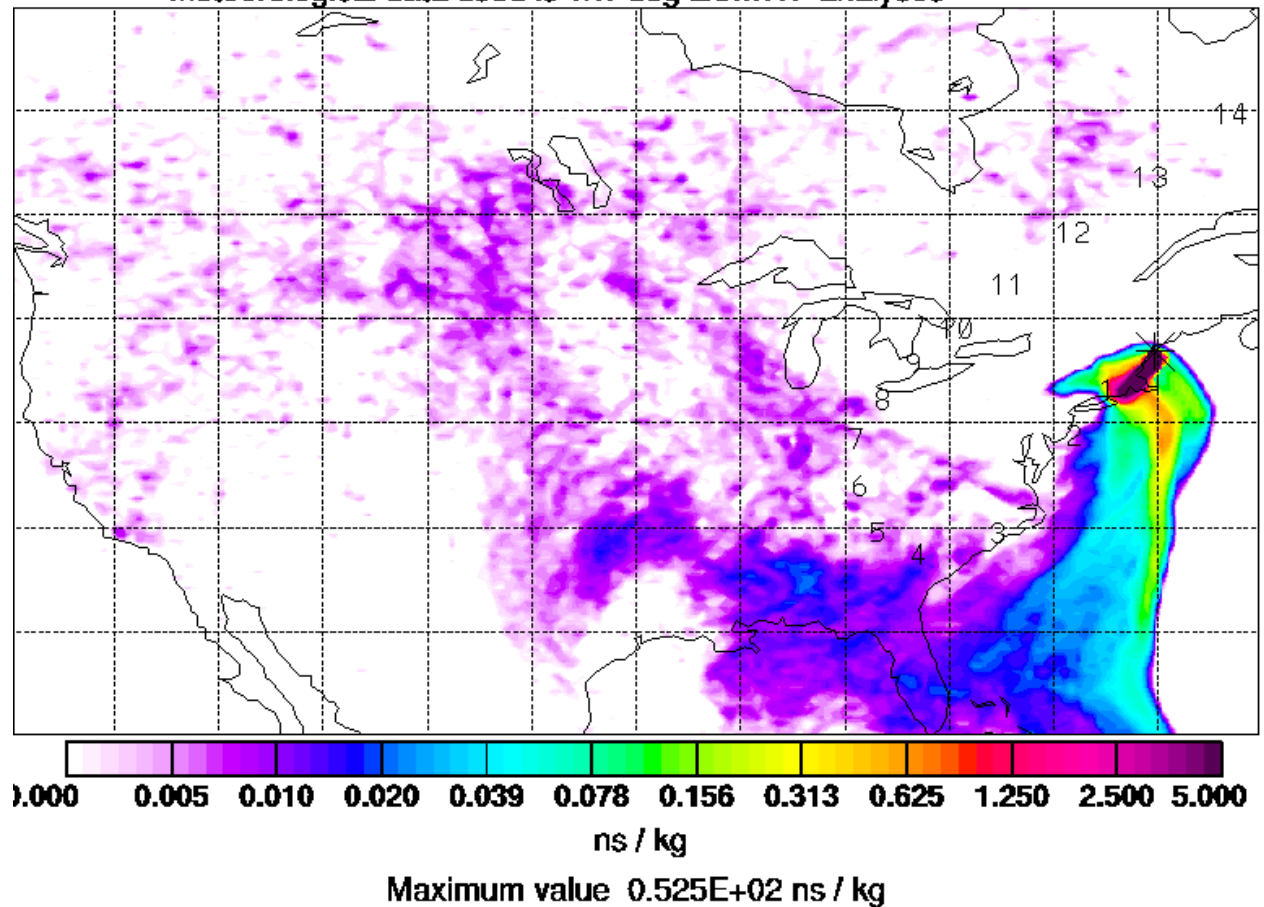


Figure 4: FLEXPART footprint for 1752-1820 UTC

Footprint S-R-Relationship for flight RHB_cruise1

Start time of sampling 20040720.234901 End time of sampling 20040721. 2101

Lower release height 0 m Upper release height 30 m

Meteorological data used is 1x1 deg ECMWF analyses

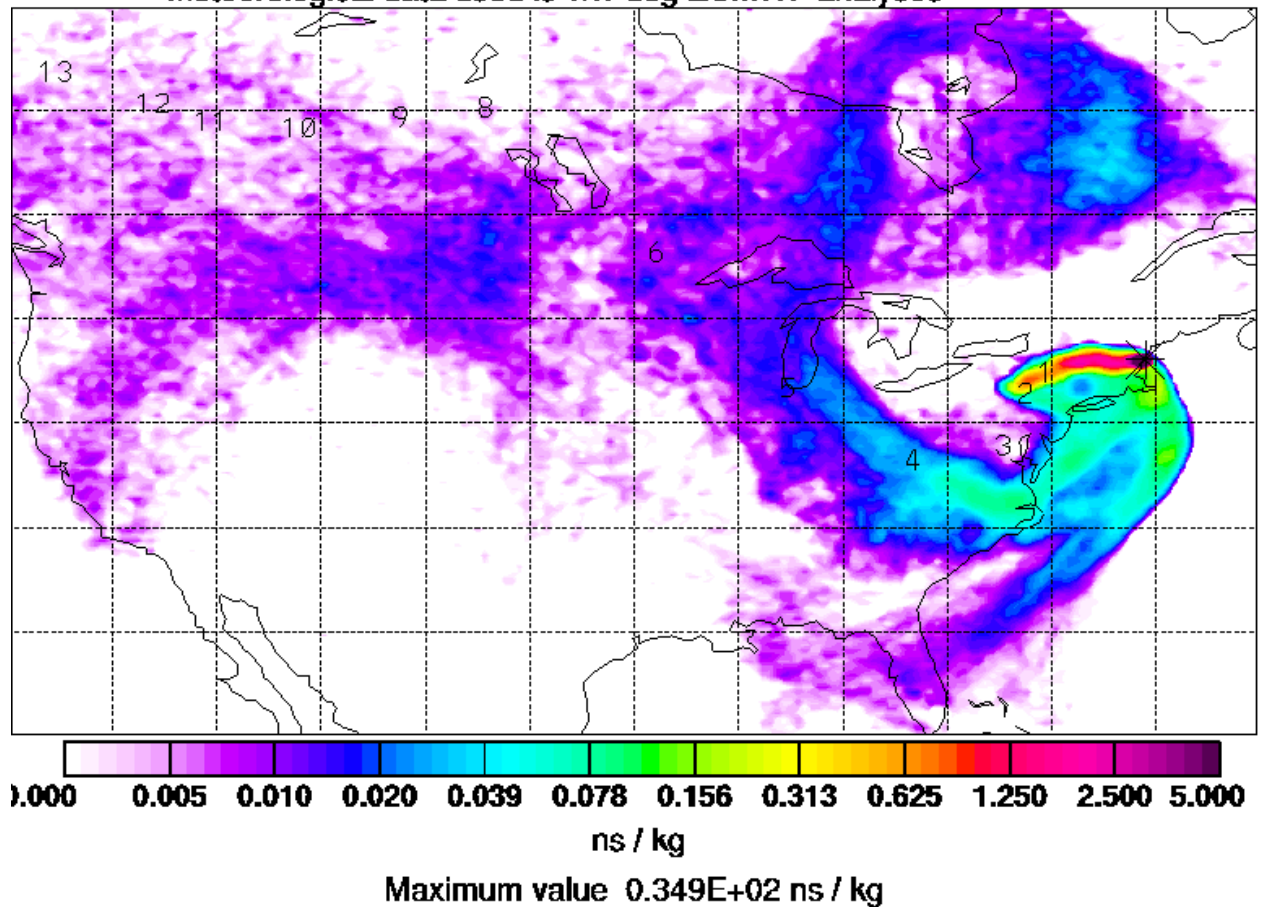


Figure 5: FLEXPART footprint for 2349 UTC 20 July – 0021 UTC 21 July

Ship track

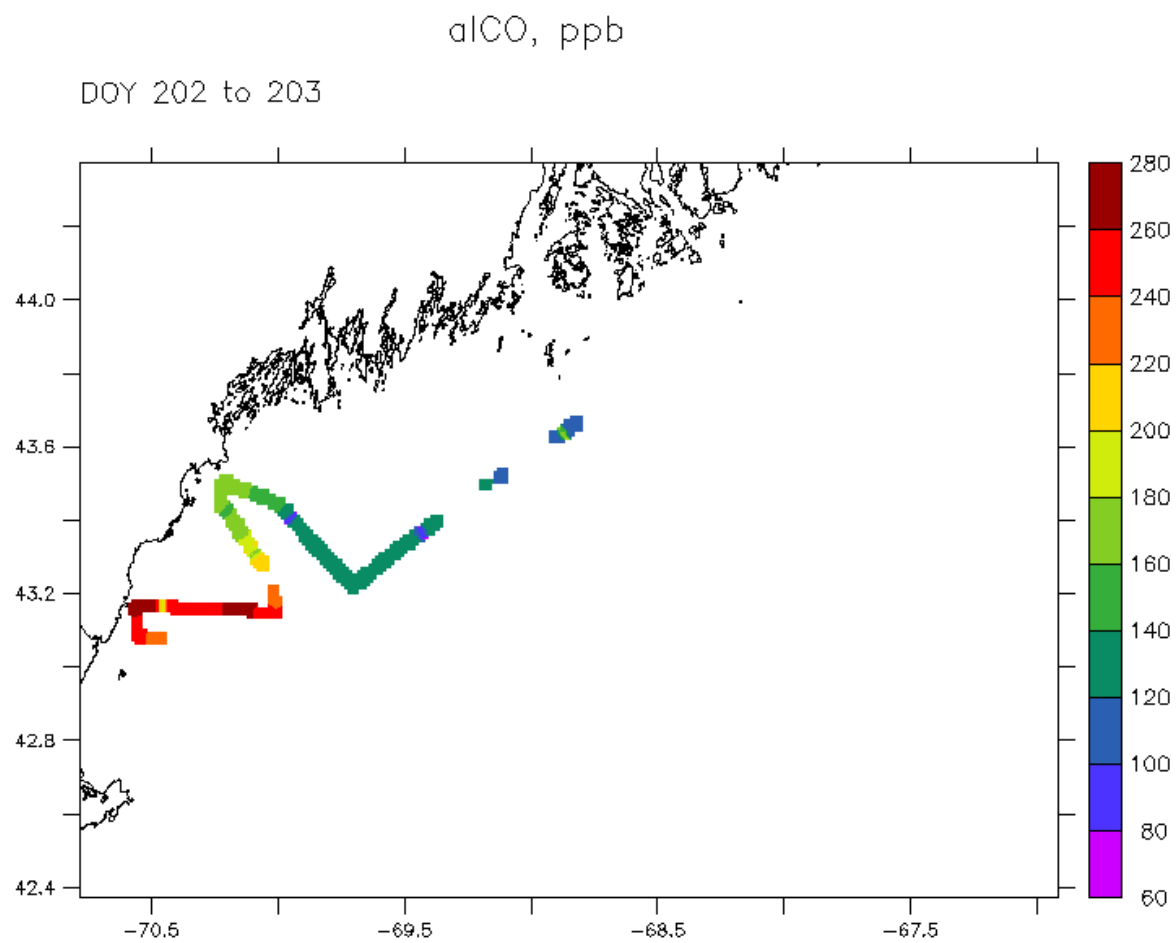


Figure 6: CO along the ship track.

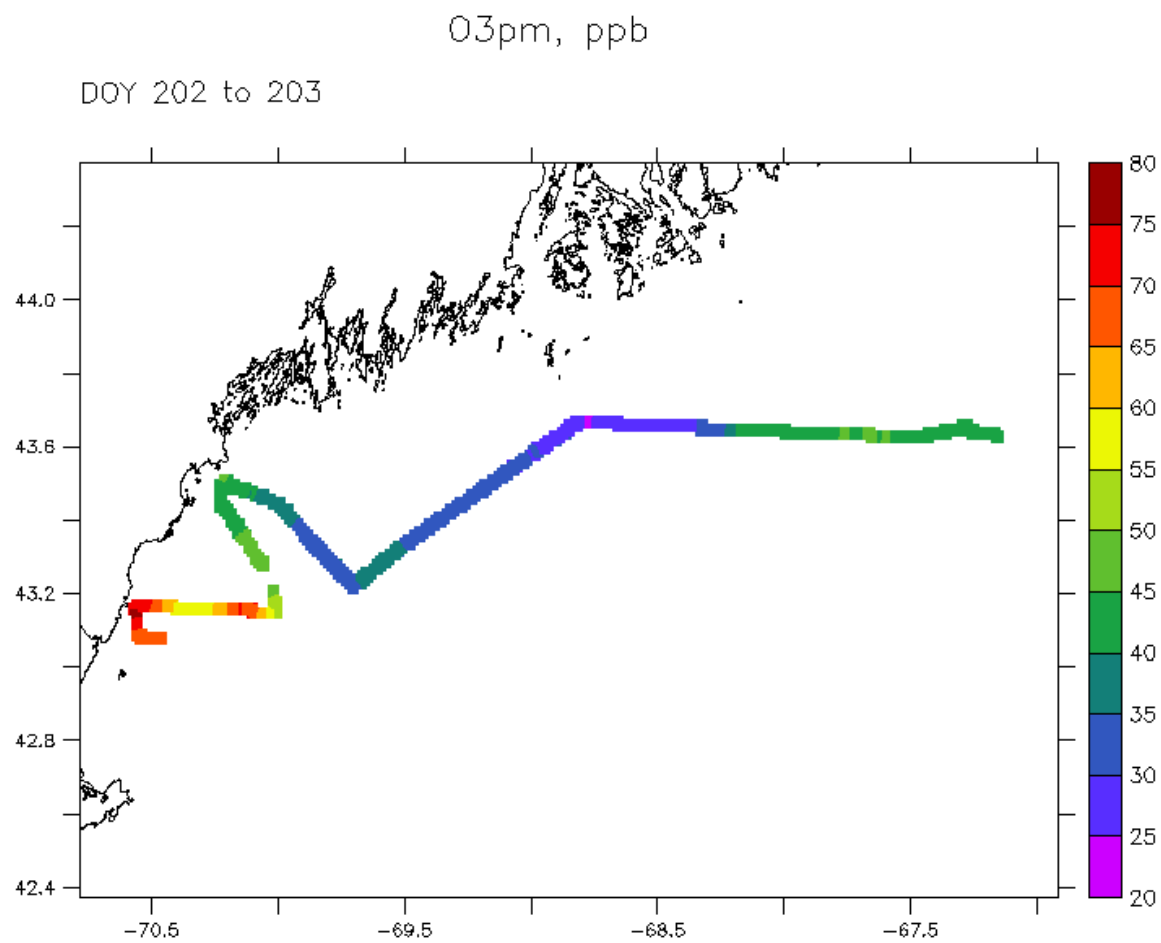


Figure 7: Ozone along the ship track

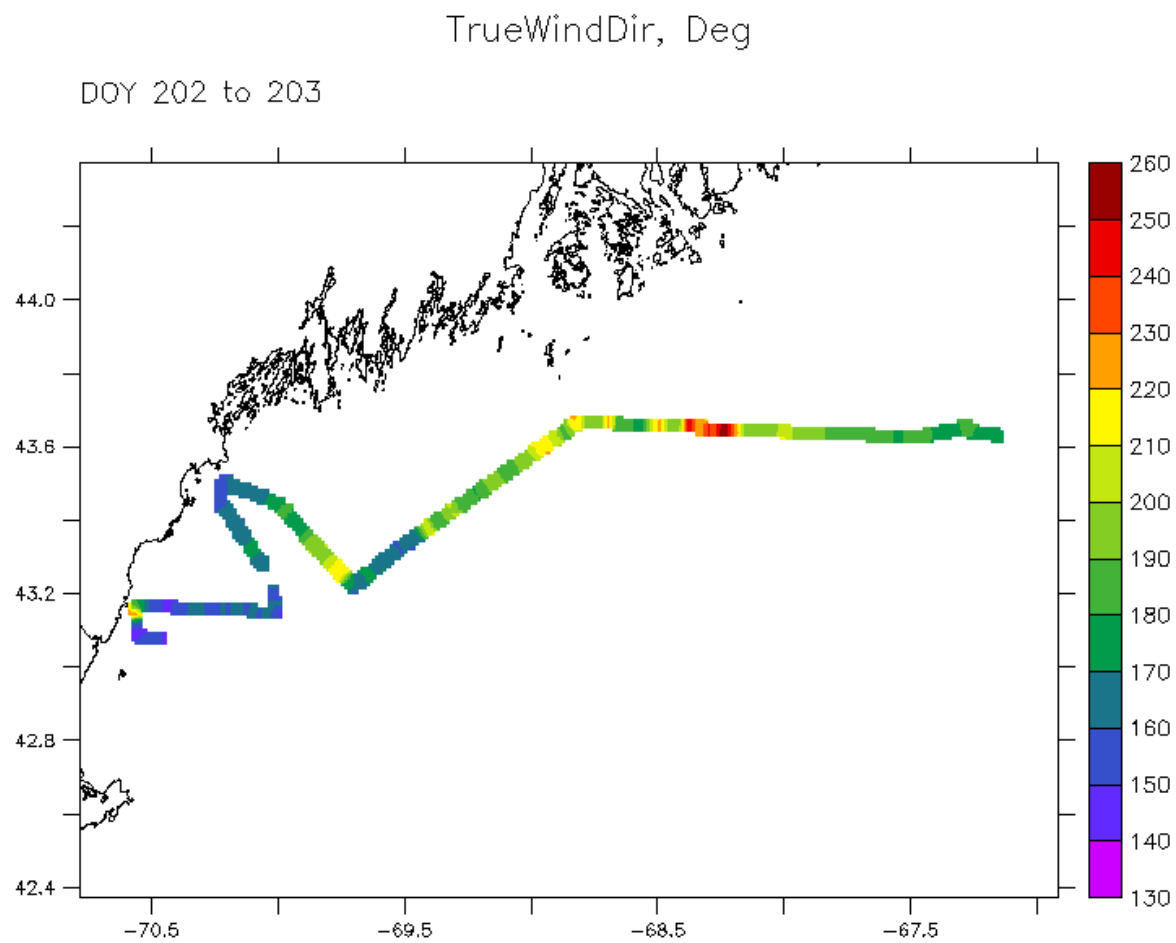


Figure 8: Wind direction along the ship track